

## A New Stichaeid Fish of the Genus *Alectrias* from Mutsu Bay, Northern Japan

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**Abstract** *Alectrias mutsuensis* sp. nov. is described on specimens collected from Mutsu Bay, Aomori Pref. This new species is rather deep dweller compared to other species of the genus, living on muddy bottoms, about 20 to 40 meters deep, and is diagnosed by the following characters: dermal crest on head reaching to occipital region; distance between end of dermal crest and dorsal fin origin less than eye diameter; end of anal fin separated from caudal fin; anterior dorsal spines before anal origin, slender and flexible; epaxial hypurals mostly fused into a single plate. A key to all nine species belonging to the subfamily Alectriinae is presented.

The genus *Alectrias* Jordan et Evermann, 1898 is related to the genus *Anoplarchus* Gill, 1861 by the presence of scales on the posterior portion of body, toothed palatines, and paired openings of the interorbital sensory canal (Table 1). But, the genus *Alectrias* is clearly distinguished from the latter in having a posterior free fold of the gill membrane.

In the genus *Alectrias*, four species are known: *A. alectrolophus* (Pallas, 1811) (type locality: Penjinski Bay, northwestern Kamchatka), *A. cirratus* (Lindberg, 1938) (type locality: Peter the Great Bay), *A. gallinus* (Lindberg, 1938) (type locality: off the Cape of Ukoï, Okhotsk Sea) and *A. benjamini* Jordan et Snyder, 1902 (type locality: Hakodate, southern Hokkaido). *A. alectrolophus* is widely distributed from the coast of the Tartary Strait (northern Japan Sea) to east Alaska through the Okhotsk and Bering seas. However, the remaining species of the genus

*Alectrias* are all confined to the Okhotsk and northern Japan seas and a part of the northwestern Pacific.

From Japan, hitherto, two species of the genus *Alectrias* were known: *A. benjamini* from the northern Japan Sea and the northwestern Pacific (Yamagata Pref. [Honma and Sugihara, 1963], Aomori Pref. [Shiogaki, 1982], Miyako, Iwate Pref. [Abe and Arai, 1968], Hokkaido [Ueno, 1966]); *A. alectrolophus* from a single locality, Samani near the Cape of Erimo, southeastern Hokkaido (Arai and Abe, 1973).

In the course of scallop-culture investigations in Mutsu Bay, Aomori Pref., from 1973 to 1983, the author obtained numerous specimens of an undescribed species of the genus *Alectrias* from culture baskets laid on muddy bottoms, 20 to 40 meters deep, off many points of the bay.

This new species is described after comparative examinations on five of the known eight species belonging to the four genera of the subfamily Alectriinae and a key to the all known species of Alectriinae is presented.

### Methods and materials

Measurements and counts were made in accordance with the method of Hubbs and Lagler (1958) except the following: (1) crest-dorsal origin length is from a point just in front of the last opening of occipital sensory canal to the origin of dorsal fin (Fig. 1: B to C), (2) the length of crest base is the length from the tip of snout to a point just in front of the last opening of occipital sensory

Table 1. Comparison of the number of openings in each head sensory canal of four genera of Alectriinae. IF, infraorbital canal; IT, interorbital canal; MN, mandibular canal; NS, nasal canal; OC, occipital canal; PO, postorbital canal; PR, preopercular canal.

Genus name	Number of openings in each canal						
	NS	IT	IF	PO	OC	PR	MN
<i>Aletridium</i>	2	5	6	7	5	6	4
<i>Pseudalectrias</i>	1	3	1	6	5	5	2
<i>Alectrias</i>	2	4	6	7	5	6	4
<i>Anoplarchus</i>	2	4	6	7	5	6	4

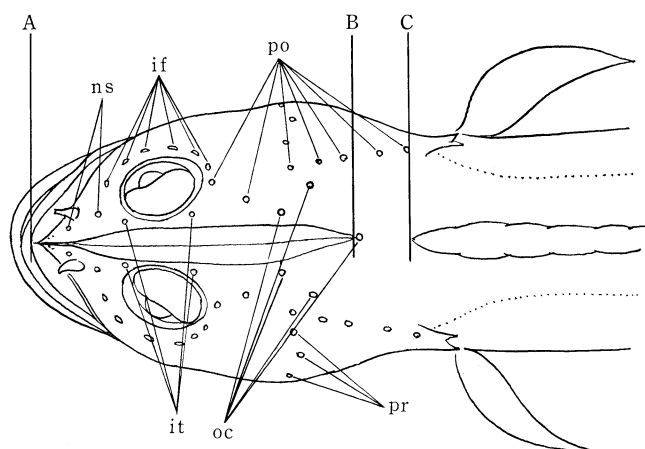


Fig. 1. Arrangement of openings of head sensory canal and measurements of dermal crest base (A-B) and crest-dorsal origin length (B-C). A, tip of snout; B, end of dermal crest or just in front of opening of posterior occipital sensory canal; C, origin of dorsal fin; if, openings of infraorbital canal; it, openings of interorbital canal; ns, openings of nasal canal; oc, openings of occipital canal; po, openings of postorbital canal; pr, openings of preopercular canal.

canal (Fig. 1: A to B). Nomenclature and counts of openings of the head sensory canal follow Maku-shok (1958) except the last median opening of the posterior occipital sensory canal is counted. X-ray photographs are used for counts of fin rays and vertebrae. Head sensory canals and osteological features were observed on several cleared and stained specimens. Abbreviations of repositories are as follows; ACAP (Aquaculture Center of Aomori Prefecture), BCPM (British Columbia Provincial Museum, Canada), NMC (National Museum of Canada), USNM (United States National Museum, Smithsonian Institution), and NSMT-P (National Science Museum, Tokyo).

**Comparative materials.** *Alectrias alectrolophus*: USNM 74712, Nikolski, Bering I., June 15, 1906, 24 specimens, 36.0–95.7 mm SL (3 specimens, 76.4–85.3 mm SL, cleared and stained); USNM 22018, St. Michaels, Alaska, Oct. 10, 1876, 6 specimens, 67.4–104.6 mm SL; USNM 23979, St. Michaels, Alaska, date unknown, 5 specimens, 87.3–108.0 mm SL; USNM 54228, Bering Sea, date unknown, 3 specimens, 88.3–91.3 mm SL; USNM 38960, Petropavlovsk, Kamchatka, Sep., 1883, 5 specimens, 80.7–98.2 mm SL; USNM 38962, Bering I., March, 1884, 21 specimens, 56.4–95.3 mm SL; NSMT-P 10078–10080, Samani, near the Cape of Erimo, Hokkaido, Aug. 1970, 3 specimens, 71.3–80.0 mm SL.

*Alectrias benjamini*: ACAP 3673, Ohdose, near Ajigasawa, Aomori Pref., Japan Sea, June 16, 1981, 83.0 mm SL; ACAP 3997, Ajigasawa, July 31, 1981,

70.4 mm SL; ACAP 4061, Ajigasawa, Aug. 1, 1981, 37.4 mm SL, (cleared and stained); ACAP 4103–4106, Akaishi, near Ajigasawa, Aug. 2, 1981, 4 specimens, 58.3–87.3 mm SL (ACAP 4104, 60.7 mm SL, cleared and stained); ACAP 4204, Yokoiso, near Fukaura, Aomori Pref., Japan Sea, Aug. 10, 1981, 65.8 mm SL, (cleared and stained); ACAP 4268, Ajigasawa, Sep. 20, 1981, 57.9 mm SL; ACAP 4686, Fukaura, Jan. 23, 1982, 74.5 mm SL; ACAP 4786, Minmaya, northern Tsugaru Pen., Aomori Pref., June 17, 1982, 73.6 mm SL; ACAP 4853–4866, Minmaya, July 17, 1982, 14 specimens, 64.6–83.0 mm SL; ACAP 4981–4986, Minmaya, July 31, 1982, 6 specimens, 66.3–90.7 mm SL; ACAP 5038–5043, Minmaya, Aug. 1, 1982, 6 specimens, 74.8–85.5 mm SL; ACAP 5211–5214, Minmaya, Aug. 7, 1982, 4 specimens, 64.0–82.8 mm SL; ACAP 5277–5280, Minmaya, Aug. 22, 1982, 4 specimens, 67.3–82.4 mm SL; ACAP 5547, Minmaya, Oct. 24, 1982, 76.8 mm SL; ACAP 5608, Tappi, near Minmaya, Nov. 7, 1982, 74.3 mm SL; ACAP 5692–5703, Minmaya, collected from Oct. to Nov., 1982 and kept in the aquarium until Feb. 1983, 12 specimens, 72.4–98.8 mm SL.

*Anoplarchus purpureus*: USNM 247228, Oregon, Fossil Point, June 20, 1962, 4 specimens, 70.7–107.0 mm SL; USNM 216537, Kodiak I., Alaska, Oct. 20, 1976, 4 specimens, 89.0–105.5 mm SL; ACAP 5704–5728, Vancouver I., British Columbia, May 9–10, 1977, 25 specimens, 54.2–98.0 mm SL, (5706–5709, 5716–5720, 9 specimens, 56.0–88.6 mm SL, cleared and stained).

*Anoplarchus insignis*: NMC 64-0430, Indian Arm,



Fig. 2. *Alectrias mutsuensis* sp. nov. A, holotype, NSMT-P 23201, collected from Moura, Mutsu Bay, Aomori Pref., Nov. 26, 1979, 82.0 mm SL, mature male; B, paratype, ACAP 5452, Minato-machi, Aomori City, Oct. 4, 1982, 75.4 mm SL, maturing male; C, paratype, ACAP 5455, collected together with B on the same locality and date, 71.7 mm SL, maturing female. Note on the shape of dermal crest on head, varying by sexes and maturation.

British Columbia, Aug. 19, 1964, 9 specimens, 77.8–101.3 mm SL; BCPM 973-17, Arbutus I., British Columbia, 5 specimens, 81.0–114.0 mm SL, (3 specimens, 85.4–94.7 mm SL, cleared and stained); BCPM 980-366, Port Hardy, Vancouver I., British Columbia, June 25, 1980, 5 specimens, 70.8–113.4 mm SL; ACAP 5734, Indian Arm, British Columbia, Aug. 19, 1964, 81.0 mm SL, (cleared and stained).

*Alectridium aurantiacum*: USNM 74712 (misidentification: in the specimens labeled as *Alectrias alectrolophus*), Nikolski, Bering Is., June 15, 1906, 5 specimens, 50.0–64.7 mm SL (3 of 5 specimens cleared and stained); USNM 117493 (misidentification: in the specimens labeled as *Alectrias alectrolophus*), Beresken Egg I., Aleutian Is., Alaska, July 27, 1939, 2 specimens, 70.5–71.5 mm SL; USNM 70960 (misidentification: in the specimens labeled as *Alectrias alectrolophus*), Unalaska I., Aleutian Is., May 25, 1906, 6 specimens, 52.2–77.0 mm SL.

*Alectrias mutsuensis* sp. nov.

(New Japanese name: Mutsu-musha-ginpo)  
(Figs. 2, 3A, 4B, 5A, 6B, 7, 8A)

*Alectrias alectrolophus*: Shiogaki, 1982: 22 (listed; misidentification).

**Holotype.** NSMT-P 23201, off Moura I., Hiranai-machi, Mutsu Bay, Aomori Pref., 40°56'N, 140°51'E; collected from scallop-culture basket laid on muddy bottom, 23 meters deep, Nov. 26, 1979, 82.0 mm SL, mature male.

**Paratypes.** NSMT-P 23202–23209, off Yomogita, Mutsu Bay, 22 meters deep, June 15, 1983, 8 specimens, 52.2–66.4 mm SL. ACAP 315, off Yokohama, Mutsu Bay, July 6, 1977, 70.0 mm SL, (cleared and stained). ACAP 318, off Moura, June 2, 1978, 73.0 mm SL. ACAP 320–323, 325, 330–332, 335–337, 339–346, 359, 362, off Moura I., Nov. 26, 1979, collected with holotype, 20 specimens, 52.5–77.8 mm SL, (ACAP 335,

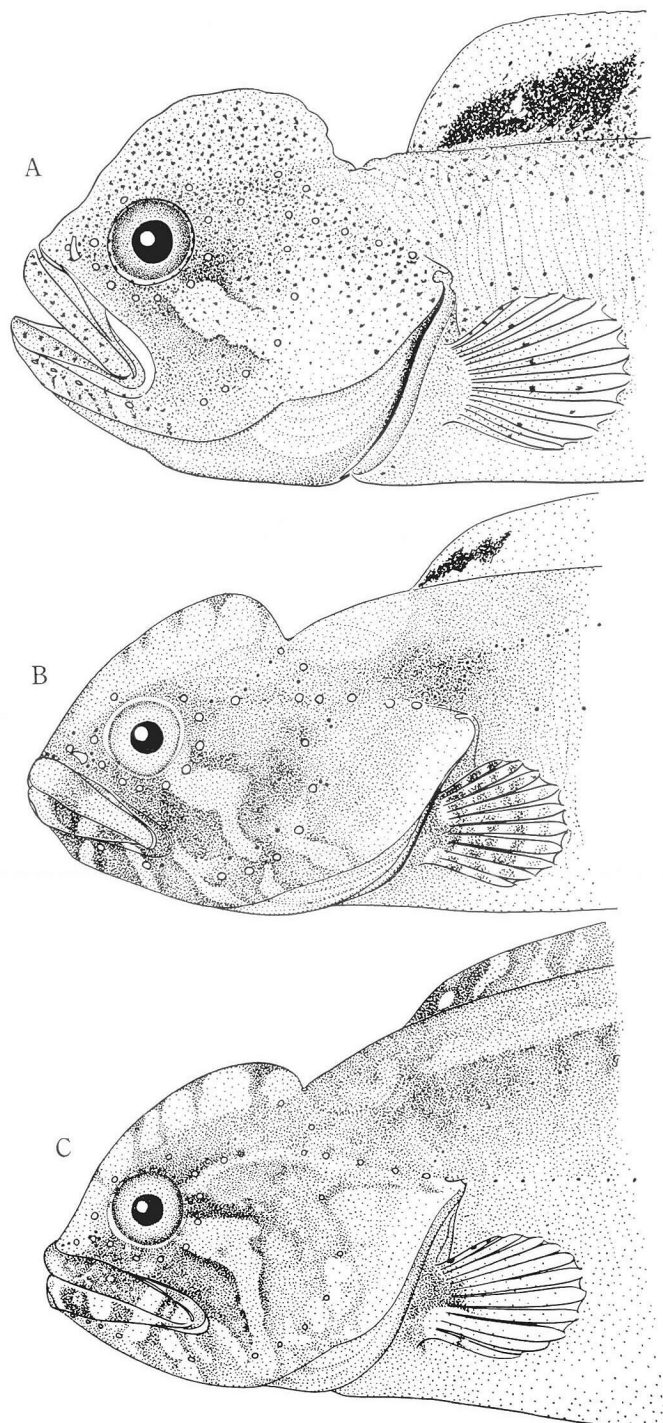


Fig. 3. Head and anterior body of three Japanese species of the genus *Alectrias*. A, *A. mutsuensis* sp. nov., holotype, NSMT-P 23201, 82.0 mm SL, mature male; B, *A. alectrolophus*, NSMT-P 10080, collected from Samani, Hokkaido, Aug. 17, 1970, 80.0 mm SL, immature male; C, *A. benjamini*, ACAP 4859, collected from Minmaya, Aomori Pref., July 17, 1982, 80.5 mm SL, immature male.

346: 69.7, 61.5 mm SL, cleared and stained). ACAP 1662, off Yokohama, Mutsu Bay, 30–40 meters deep, Oct. 7, 1973, 62.3 mm SL, (cleared and stained). ACAP 4749, off Yomogita, Mutsu Bay, May 22, 1982, 48.2 mm SL. ACAP 5451–5466, off Minato-machi, Aomori City, 23 meters deep, Oct. 4, 1982, 16 specimens, 44.7–83.6 mm SL. ACAP 5778, off Tsukurimichi, Aomori City, 32 meters deep, June 23, 1983, 61.3 mm SL. ACAP 5841–5843, off Shiokoshi, Kanita-machi, Mutsu Bay, July 15, 1983, 3 specimens, 62.0–69.3 mm SL.

**Diagnosis.** Body slender, its depth 7.5–9.6 (mean value, 8.6) in SL. Last anal ray nearly attached to caudal fin but clearly separated. Dermal crest on head large, its base long, 1.3–1.6 (1.4) in HL. Crest-dorsal origin length very short, smaller than eye diameter, 1.2–3.1 (1.5) in eye diameter. Dermal crest and cheeks densely dotted with numerous small black spots. Pectoral fin with fewer rays, 8–10 (9). Dorsal spines long, the longest spine 2.7–3.4 (3.2) in HL. Anterior dorsal spines before anal origin very slender and

flexible. Epaxial hypurals mostly fused into a single plate.

**Description.** Selected measurements and counts are shown in Table 2. The following description is based on the holotype. Characters of the paratypes, when different from those of the holotype, are shown in parentheses as follows: range, mean.

D LVIII (LVI–LIX), A I, 40 (39–42), P 9 (8–10), C 13 (11–14), Vertebrae 16+45=61 (16–18+44–47=60–63).

Body slender and highly compressed, its depth 8.0 (7.5–9.6, 8.6) in SL; body depth at anal origin 8.4 (8.4–10.1, 9.6). Head without filaments; its length 5.9 (5.4–6.6, 6.1) in SL. Eye moderate, its diameter 5.6 (5.0–5.6, 5.3) in HL; snout short, equal to eye diameter, its length 5.4 (4.8–6.2, 5.3) in HL. Bony interorbital width small, 2.3 (2.3–5.7, 4.1) in eye diameter. Mouth oblique, its cleft moderate; maxillary end extending to a vertical through posterior end of iris, not exceeding

Table 2. Comparison of measurements and counts of three species of the genus *Alectrias* found from Japanese waters. Number in parentheses indicates mean value. \* Number of specimens examined.

Species name	<i>A. mutsuensis</i> sp. nov.	<i>A. alectrolophus</i>	<i>A. benjamini</i>
<b>Measurements:</b>			
Standard length	53.5–82.0 mm, 10*	71.8–108.4 mm, 18*	66.3–91.0 mm, 10*
In SL			
Head length	5.4– 6.6 (6.1)	6.1– 6.9 (6.4)	5.7– 6.8 (6.2)
Body depth (maximum)	7.5– 9.6 (8.6)	6.7– 9.2 (7.8)	5.4– 7.0 (6.0)
Body depth at anal origin	8.4–10.1 (9.6)	8.4–10.2 (9.2)	6.1– 7.1 (6.5)
Distance from tip of snout to anal origin	2.4– 2.6 (2.5)	2.4– 2.6 (2.5)	2.3– 2.5 (2.4)
In HL			
Dermal crest base length	1.3– 1.6 (1.4)	1.5– 1.8 (1.6)	1.4– 1.6 (1.5)
Pectoral fin length	2.3– 2.7 (2.5)	2.0– 3.0 (2.4)	2.8– 3.7 (3.1)
Longest dorsal spine length	2.7– 3.4 (3.2)	2.8– 4.5 (3.6)	3.6– 5.0 (4.3)
In body depth			
Caudal peduncle depth	2.7– 3.3 (3.0)	2.5– 3.6 (3.1)	3.7– 4.5 (4.1)
In eye diameter			
Crest-dorsal origin length	1.2– 3.1 (1.5)	0.6– 1.3 (1.0)	0.9– 1.2 (1.1)
<b>Counts:</b>			
Dorsal fin rays	LVI–LIX (57.5) 56*	LX–LXV (62.0) 53*	LVII–LIX (57.8) 51*
Anal fin rays	I, 39–42 (40.3) 56*	I, 42–45 (43.3) 53*	I, 39–42 (40.7) 51*
Pectoral fin rays	8–10 (8.8) 75*	9–11 (10.0) 55*	10–11 (10.1) 22*
Vertebrae	16–18+44–47=60–63 (16.7+45.2=61.9) 56*	17–19+47–50=65–69 (18.0+48.5=66.5) 53*	15–17+45–47=60–63 (16.0+45.7=61.7) 51*
End of anal fin	separated	confluent to caudal fin	confluent to caudal fin
Ring canal in posterior occipital sensory canal	present	present	absent

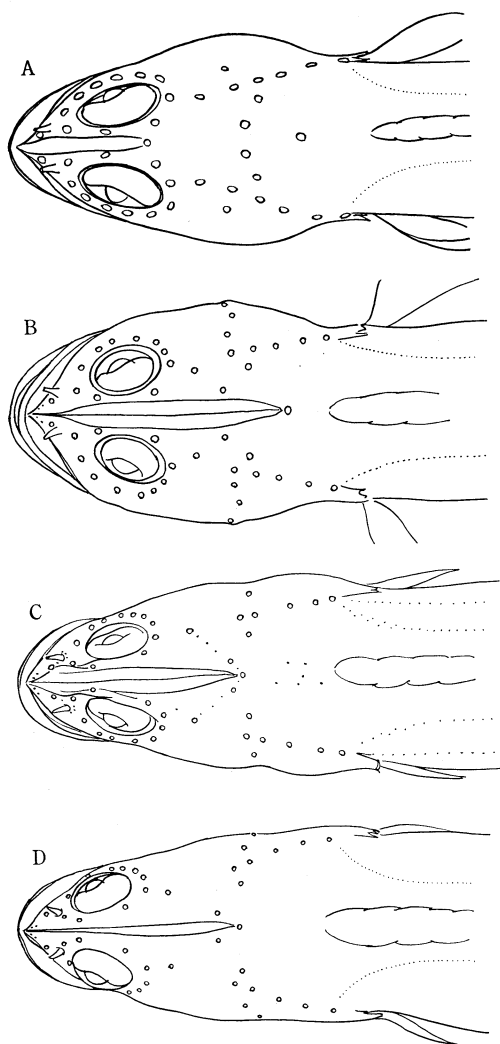


Fig. 4. Arrangements of openings of head sensory canal in *Alec-tridium* and *Alectrias*. A, *Alec-tridium aurantiacum*, USNM 74712; B, *Alectrias mutsuensis* sp. nov., holotype, NSMT-P 23201; C, *Alectrias alectrolophus*, NSMT-P 10080; D, *Alectrias benjamini*, ACAP 4859. Note the extent of dermal crest base and the crest-dorsal origin length.

posterior rim of eye. Lower jaw slightly longer than the upper. Pectoral fin inferior and small, its length 2.5 (2.3–2.7, 2.5) in HL, its uppermost ray very small and not branched. Dermal crest on head fully developed, elevated roundly, its height 0.8 (0.8–5.7, 2.3) in eye diameter. This character highly varying by sexes and maturation

in males. Dermal crest base long, its posterior end much exceeding posteriormost opening of preopercular sensory canal (Fig. 4B), its length 1.4 (1.3–1.6, 1.4) in HL. Crest-dorsal origin length short, smaller than eye diameter, 1.7 (1.2–3.1, 1.5) in eye diameter (Figs. 3A, 4B).

Gill membranes fused to each other and attached to the isthmus anteriorly, but forming free fold posteriorly across the isthmus; length of free fold nearly less than eye diameter. Uppermost gill membrane making a dermal siphon.

Dorsal fin long, originating from above last opening of postorbital sensory canal, slightly before posterior end of gill membrane; confluent to caudal fin base, but clearly notched (Fig. 6B). The length of dorsal spines gradually increasing toward posterior and abruptly decreasing at the last 3–4 spines; the longest spine length 3.0 (2.7–3.4, 3.2) in HL. Anterior dorsal spines before anal origin very slender and flexible, but gradually increasing stoutness toward posterior from over anal origin (Fig. 5A). Anterior flexible spines elongated and very weak, concealed in the skin, as high as the middle spine length (Fig. 2; in females and immature males, anterior dorsal spines low). Anal fin low, its length gradually increasing toward posterior, and 2nd ray from the end the longest, its length 3.3 (2.8–3.6, 3.2) in HL (Figs. 2, 5A). The last ray shorter than the former and nearly attached to caudal fin base but clearly separated (Fig. 6B). Anal origin located much before the midpoint of body, below 17th dorsal spine (16–18th, 17th); distance from the tip of snout to anal origin 2.5 (2.4–2.6, 2.5) in SL. A single anal spine very short and completely embedded in the skin. Anal rays branched at tips. Caudal fin rounded, its length 1.9 (1.5–1.9, 1.7) in HL, 11 rays branched. Margin of anal fin weakly incised. Caudal peduncle depth low, shorter than dorsal spine length, 2.8 (2.7–3.3, 3.0) in body depth (Fig. 5A).

Anterior body and head without scales; anterior body furrowed shallowly at vertical and curiously wrinkled (Fig. 3A). Posterior body covered with very small cycloid scales deeply embedded in the skin and not overlapped and arranged irregularly; anterior extent of squamation above 3rd (3–4th) anal ray. Scales on caudal peduncle sparsely arranged or absent. Bases of all fins free from scales.

Teeth on both jaws, small and conical; in small

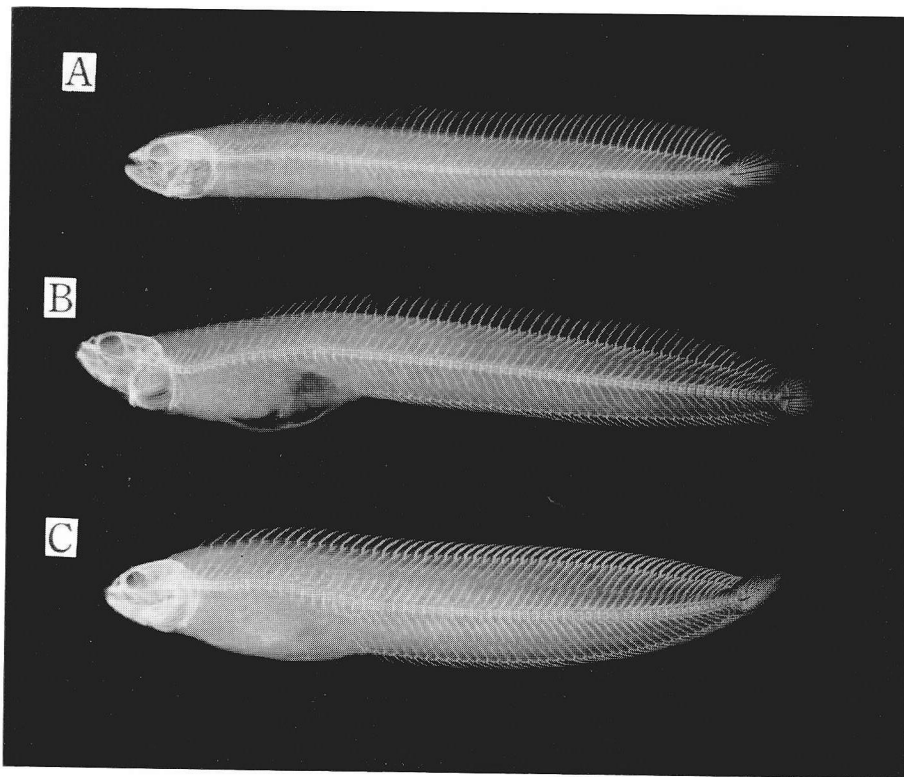


Fig. 5. Radiographs of three Japanese species of the genus *Alectrias*. A, *A. mutsuensis* sp. nov., holotype, NSMT-P 23201; B, *A. alectrolophus*, USNM 74712; C, *A. benjamini*, ACAP 4106.

bands at anterior tips but in a single row posteriorly. Vomer and palatines with small conical teeth in a single row. Gill rakers very small,  $2+1+6$ . Pseudobranchiae present.

Pelvic fin absent. Branchiostegals 5; anterior three rays attached abaxially on ceratohyal and posterior two rays also abaxially on epihyal. First interhaemal narrow splint, free from anal ray. Dorsal free caudal vertebrae 4 (3–5, 4). Both last interneural and interhaemal supporting two rays (Fig. 5A). Epaxial hypurals mostly fused into a single plate (Fig. 7B, Table 3). Minimal hypural absent. Epurals three.

Head sensory canals well developed and the number of openings in each canal consistent to all known species of *Alectrias*. Number of openings in each canal: nasal 2, interorbital 4, infraorbital 6, postorbital 7, occipital 5, preopercular 6 and mandibular 4 (Fig. 4B, Table 1).

Lateral lines composed of pit organs. An upper branch running along dorsal fin base, extending over anus, and a median branch running straight to caudal fin base.

In paratypes, shoulder girdle with 4 actinosts and a single postcleithrum. Scapular foramen moderate, but interspace between cleithrum and coracoid relatively large (Fig. 8A). Infraorbital sensory canal passing through tube-like infraorbital bones (long tube-like lachrymal, 4 short infraorbitals). Interorbital sensory canals closely arranged, but clearly separated from each other. Posterior occipital sensory canal composed of several rings (Fig. 7A).

**Coloration.** In the preserved holotype, body uniformly light brown, darker dorsally. On dermal crest and cheek minute black spots densely dotted. From eye, one broad pale bar extending posteroventrally, fringed with darker narrow lines. Lower jaw and chin crossbarred. Posterior margin of gill membrane black. On the body along dorsal fin base, a series of 12 obscure dark spots smaller than eye diameter. In other specimens, this spot series white and the spots speckled with minute black dots. Similar spot series along median line of body. In anterior dorsal fin, a large black spot, longer than twice of eye diameter; in its

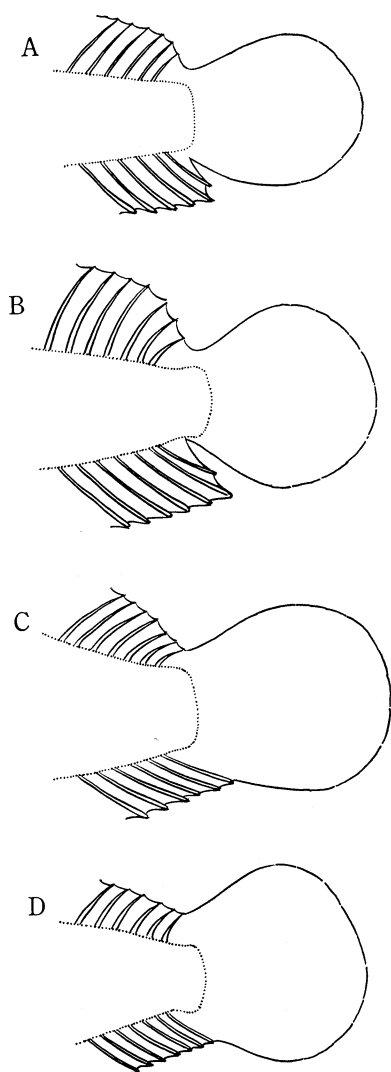


Fig. 6. Connections of dorsal, anal and caudal fins. A, *Alectridium aurantiacum*, USNM 117493; B, *Alectrias mutsuensis* sp. nov., ACAP 359; C, *Alectrias alectrolophus*, USNM 38960; D, *Alectrias benjamini*, ACAP 5692.

center a small white spot. Dorsal fin brown, covered with minute black dots; anal fin pale and variegated with brown. Caudal fin finely cross-barred; its base with an obscure narrow pale band. Pectoral fin pale, with several black dots (Figs. 2, 3A).

When fresh, body reddish brown, sometimes bright cherry pink; dorsal fin and anterior anal fin bearing reddish orange. Head yellowish olive.

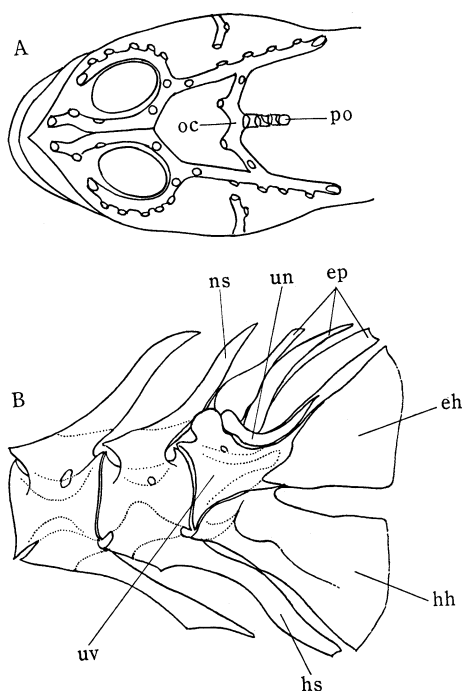


Fig. 7. Arrangement of head sensory canal system (A) and caudal skeleton (B) of *Alectrias mutsuensis* sp. nov., ACAP 346. eh, epaxial hypural; ep, epurals; hh, hypaxial hypural; hs, haemal spine; ns, neural spine; oc, occipital sensory canal; po, posterior occipital sensory canal (composed of several rings); un, uro-neural; uv, urostylar vertebra.

Table 3. Comparison of the types of epaxial hypurals in three genera of Alectriinae.

Species name	Number of specimens of each type of epaxial hypurals	
	fused	separated
<i>Alectridium aurantiacum</i>	0	19
<i>Anoplarchus purpureus</i>	3	14
<i>Anoplarchus insignis</i>	15	14
<i>Alectrias mutsuensis</i> sp. nov.	52	4
<i>Alectrias alectrolophus</i>	8	44
<i>Alectrias benjamini</i>	9	50

The back of dermal crest sometimes obscurely fringed with several dark bars. A spot on the anterior dorsal fin greenish blue. When alive in an aquarium, usually the back of head, dorsal fin and body along dorsal fin base bearing yellowish white.



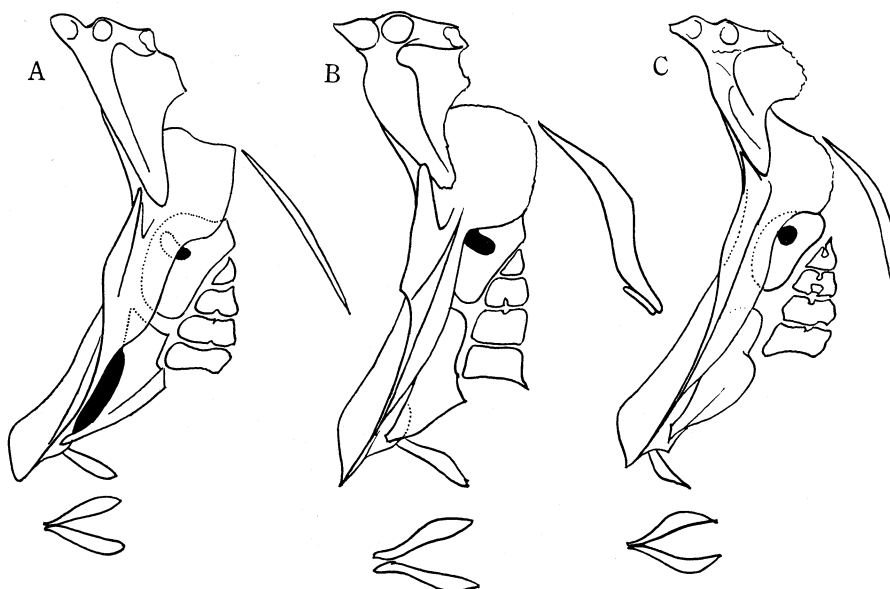


Fig. 8. Shoulder girdles (posttemporals are removed) and pelvises of three species of *Alectrias*. A, *A. mutsuensis* sp. nov., ACAP 335; B, *A. alectrolophus*, USNM 74712; C, *A. benjamini*, ACAP 4204. Scapular foramen and interspace between cleithrum and coracoid are shown in solid black.

**Sexual dimorphism.** In mature males, dermal crest well developed and high, its height 0.8–1.7 in eye diameter, but very low in females and immature males, its height 2.3–5.7 in eye diameter. The development of dermal crest seems to be controlled by the degree of gonad maturation (Fig. 2A, B). In mature males, the spot on anterior dorsal fin large and very distinct and head coloration becomes obscure and small black dots densely scattered. In females, the spot on anterior dorsal fin small and obscure, head coloration distinct, crossbars finely arranged on lower jaw and lower cheek.

#### Key to the species of *Alectriinae*

- 1a. Dermal crest on head not exceeding interorbital region, extending to just in front of a median opening of interorbital sensory canal (Fig. 4A). Gill membranes forming a free fold across the isthmus. .... 2
- 1b. Dermal crest on head reaching to occipital region, to in front of opening of posterior occipital sensory canal (Fig. 4B, C, D); openings of interorbital sensory canal paired, no median opening. Gill membranes forming a free fold across the isthmus or attached to the isthmus .... 3
- 2a. Posterior body scaled; number of openings of interorbital sensory canal 5; palatines toothed. .... *Alectridium aurantiacum*
- 2b. Body naked; number of openings of interorbital sensory canal 3; palatines toothless. .... *Pseudalectrias tarasovi*
- 3a. Gill membranes forming a free fold across the isthmus .... 4
- 3b. Gill membranes attached to the isthmus. .... 8
- 4a. A pair of supraorbital cirri present. .... *Alectrias cirratus*
- 4b. No supraorbital cirrus .... 5
- 5a. Dermal crest on head with a partly high protrusion .... *Alectrias gallinus*
- 5b. Dermal crest on head not protruded, gently curved .... 6
- 6a. End of anal fin separated from caudal fin (Fig. 6B); crest-dorsal origin length shorter than eye diameter; epaxial hypurals mostly fused into a single plate .... *Alectrias mutsuensis* sp. nov.
- 6b. End of anal fin, confluent to caudal fin (Fig. 6C, D); crest-dorsal origin length as long as or longer than eye diameter; epaxial hypurals mostly two .... 7
- 7a. Body slender, its depth at anal origin 8.4–10.2 (9.2) in SL; anterior dorsal spines rather

- slender and flexible. . . . *Alectrias alectrolophus*
- 7b. Body deep, its depth at anal origin 6.1–7.1 (6.5) in SL; anterior dorsal spines short and rather rigid . . . . . *Alectrias benjamini*
- 8a. Width between attachments of posterior margin of gill membranes to the isthmus less than one half of eye diameter\*; distance from tip of snout to anal origin, 2.3–2.5 in SL\*; caudal vertebrae 44–49\*; dermal crest very low at snout region. . . . . *Anoplarchus insignis*
- 8b. Width between attachments of posterior margin of gill membranes to the isthmus more than three-fourths of eye diameter\*; distance from tip of snout to anal origin 2.2–2.3 in SL\*; caudal vertebrae 41–46\*; dermal crest at snout as high as posterior. . . . .  
 . . . . . *Anoplarchus purpurescens*  
 (\* after Peden, 1966)

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- 陸奥湾産ムシャギンボ属魚類の1新種 塩垣 優  
 青森県陸奥湾の泥底 (水深 20–40 m) より得られた標本に基づき, 新種ムツムシャギンボ *Alectrias mutsuensis*

# Shiogaki: New Stichaeid from Japan

を記載した。日本産ムシャギンボ属魚類としてはムシャギンボ *A. benjamini*, キタムシャギンボ *A. alectrolophus* に次ぐ3番目の記録である。

本種はムシャギンボ属の5既知種の中では頭部背面のとさか状の皮弁の基底は長く、後頭部まで伸びており、この皮弁後端と背鰭始部との間隔長は眼径よりも小さいこと、臀鰭後端と尾鰭とが分離していること、臀鰭始部より前方の背鰭棘は細長く柔らかであり、これより後方の棘は強く曲げ得ない棘になっていることおよび上部下

尾軸骨 (epaxial hypurals) は多くのもので1片の骨板となっていることなどの特徴を有する。

また、ムシャギンボ亜科 *Alectriinae* に属する4属9種のうち、3属6種について標本に基づき検討したうえ、全既知種に対する新たな検索表を提示した。

(039-34 青森県東津軽郡平内町茂浦 青森県水産増殖センター)